



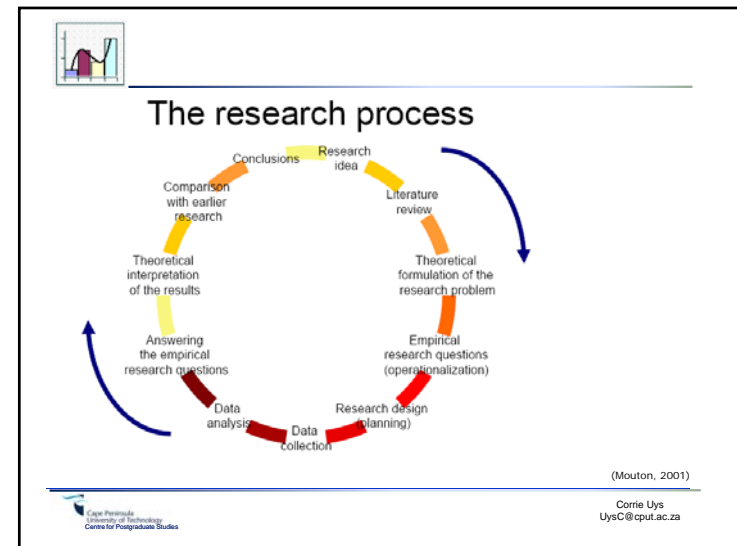
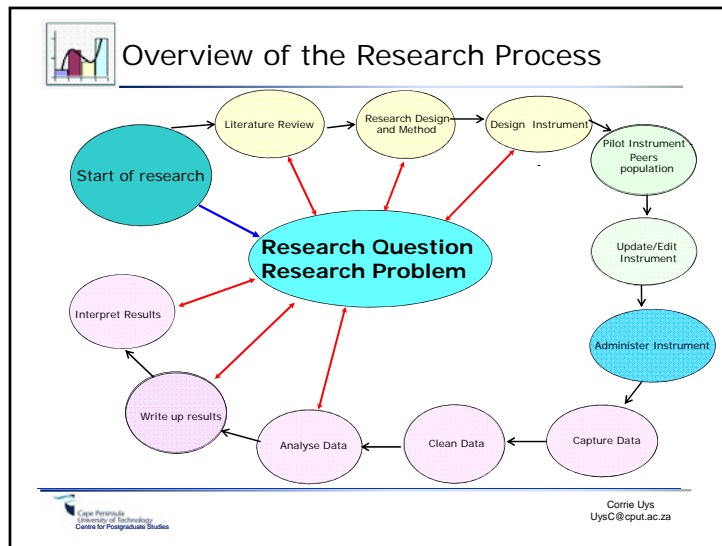
Research Designs

Corrie Uys
UysC@cput.ac.za

THE SCIENTIFIC METHOD... FOR TEN-YEAR OLDS

Corrie Uys
UysC@cput.ac.za

Cartoon image c/o [Sheldon Comics](#)





What is research design?

- Blueprint
- Plan
- Guide
- Framework

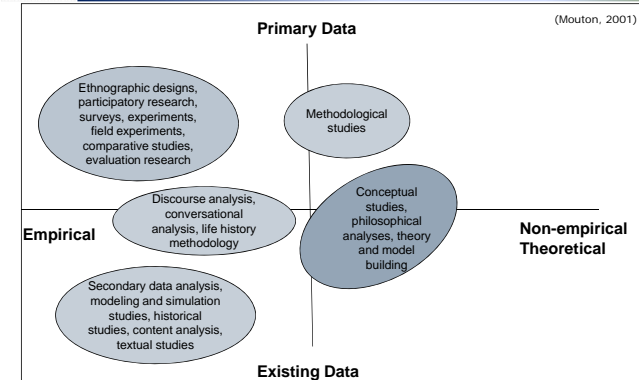
(Cooper & Schindler, 2008)

Corrie Uys
UysC@cput.ac.za
Cape Peninsula
University of Technology
Centre for Postgraduate Studies

5 / 29



Research Design Map (Level 1)

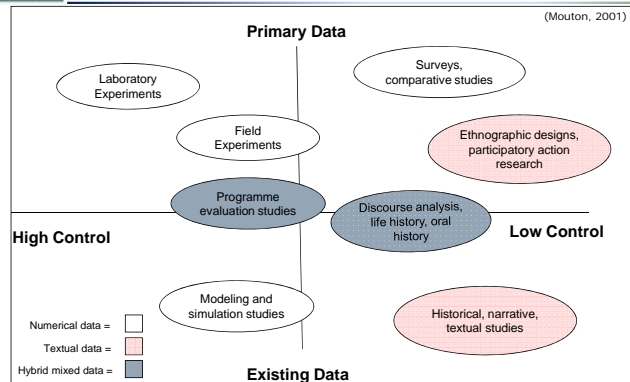


Corrie Uys
UysC@cput.ac.za
Cape Peninsula
University of Technology
Centre for Postgraduate Studies

Corrie Uys
UysC@cput.ac.za

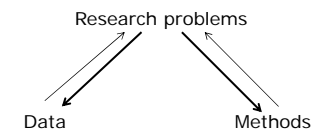


Research Design Map – Empirical studies



Corrie Uys
UysC@cput.ac.za
Cape Peninsula
University of Technology
Centre for Postgraduate Studies

Corrie Uys
UysC@cput.ac.za



- Research questions "dominate" the design.
- Data and methods are to be selected so that the research questions can be answered.
- Adopt a "sceptical mindset"!

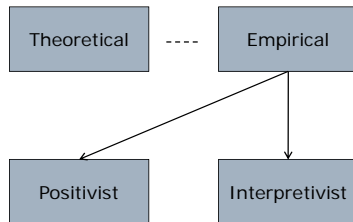
The greatest challenge to any thinker is stating the problem in a way that will allow a solution. (Bertrand Russell)

Corrie Uys
UysC@cput.ac.za
Cape Peninsula
University of Technology
Centre for Postgraduate Studies

Corrie Uys
UysC@cput.ac.za



Research strategies



(Remenyi and Money, 2004)



Types of Empirical research

- Positivism – “relies on numbers and on the researcher’s skill as mathematical or statistical analyst”
- Interpretivism – “By the term qualitative research we mean any type of research that produces findings not arrived at by statistical procedures or other means of quantification”

(Remenyi and Money, 2004)



Empirical Studies

- Ethnographic research
 - Participant observation studies
 - Qualitative in nature
 - In-depth description of group of people/community
 - Case studies
 - Qualitative in nature
 - In-depth description of a small number of cases
- Participation research/action research
 - Subjects are integral part of design
 - Mainly qualitative in nature
- Surveys
 - Usually quantitative in nature
 - Broad overview of a representative sample of large population

(Mouton, 2001)



Empirical Studies

- Comparative, cross-cultural and cross-national studies
 - Focus on differences between groups
 - Qualitative and/or quantitative
- Experimental designs (laboratory studies)
 - Quantitative in nature
 - Causal study of a small number of cases under highly controlled conditions
- Field/natural experiments
 - Quantitative in nature
 - Occur in natural settings
- Evaluation research
 - Implementation evaluation
 - Experimental/Quasi-experimental
 - Qualitative (naturalistic) and empowerment evaluation
- Statistical modelling and computer simulation studies

(Mouton, 2001)



Empirical Studies

- ▣ Secondary data analysis
 - ▣ Mostly quantitative
- ▣ Content analysis
 - ▣ Analyse content of texts or documents (words, meanings, pictures, themes, symbols)
- ▣ Textual analysis, hermeneutics, textual criticism
 - ▣ Analysis of texts to understand meaning of text
- ▣ Discourse and conversational analysis
 - ▣ More recent version of textual analysis
- ▣ Historical Studies, narrative analyses
- ▣ Life history methodology
 - ▣ Analysis of small number of cases aiming to reconstruct the life history of the individual
- ▣ Methodological studies
 - ▣ Studies aiming at developing new methods of data collection

(Mouton, 2001)



Non-empirical Studies

- ▣ Conceptual analysis
 - ▣ Analysis of meaning of words
- ▣ Theory-building or model-building studies
- ▣ Philosophical analyses
 - ▣ Analyse arguments in favour of a particular position
- ▣ Literature reviews

(Mouton, 2001)



Quantitative Designs

- ▣ Experimental Studies
- ▣ Observational Studies/Descriptive Studies



Experimental Research

- ▣ Intervention - to change dependent variable.
- ▣ Single-group design - pre- and post measurement
- ▣ More often we need more than one group - control
- ▣ Randomised groups design.
 - Randomised 2-group design
 - Randomised Multi-group design
- ▣ Control over independent variable
- ▣ Nuisance variables



Experimental Studies

- Laboratory Studies
- Field Trials
- Community Trials
- Clinical Trials
- Randomized Controlled Trials

A study is experimental if a researcher assigns a treatment to the experimental unit.



Quasi Experimental Research

Researcher

- does not have complete control over intervention.
- cannot randomly assign subjects into groups – no control for nuisance variables
- often have to study subjects in natural environment. – classrooms, workplaces, natural habitats
- can make conclusions about relationships, but not conclusively about causal relationships.



Quasi Experimental Research

- Non-equivalent control group design.
 - Use two pre-existing groups as experiment/control.
 - Measure response variable before and after intervention for all groups.
 - If response variable differ afterwards, then intervention was successful.
 - Interrupted time-series.
- A number of repeated measurements before and after intervention at equal time intervals.
 - Researcher must take other events during the same time period into account.



Non-experimental designs

- Cannot randomly assign subjects into groups determined by levels of response variable.
- No planned intervention occurs.
- May have more than one independent variable- influencing response variable.
- Cannot make conclusions about causality.
- Must study variables closely and statistical methods – to determine relationships.
- Typically done in natural environments.
- Also called non-experimental hypothesis-testing research.



Non-experimental designs: Survey designs

- opinion polls
counting traffic
recording activities
- no planned intervention
no randomizing into groups
- examine relationships between different variables
- may have more than one response/dependent variable



Non-experimental designs Single Measurements

- Correlation design
 - Each individual is measured on two or more variables.
 - Relationship (correlation) between variables are analysed.
- Criterion-groups design
 - Samples are drawn from population representing different levels in population.
- Cross-Sectional design – special case of criterion-groups design.
 - Measurements must be taken at the same time.



Longitudinal Design

- Investigate changes caused by passage of time.
- Time period from a few weeks to 20 years.
- panel design – measurements taken on different points in time on one or more response variables for same representative sample.
- cross-lagged panel design – two or more measurements on two or more different time-points from same representative sample. Can we relate variable A at time 1 to variable B at time 2 – analyses complicated.
- cohort design – does not involve a representative sample. Study an intact group.
- Trend design – may utilise historical records.



Descriptive Studies

- Analytic Studies
 - Cross-Sectional
 - Case-Control
 - Follow-Up
 - Ecologic
 - Longitudinal



Cross-Sectional Studies

- A cross-section of population (e.g. a survey of all firms on the JSE) is investigated, and information is collected on exposures (e.g. managerial methods) at a point in time.
- A point-in-time snapshot

Advantages: Quick, Relatively inexpensive

Disadvantages: Difficult to interpret. Changes may happen in variable over time.



Case-Control Studies

- Retrospective study where 'cases' (e.g. failed companies) are compared to appropriately selected controls (e.g. existing non-failed companies) to determine whether former differ with respect to some exposure factor for example the company has an internal or external DP department.
- Cases and Controls



Prediction Studies

- different variables are measured at different points in time.
- Independent – predictor – variables are usually biographical, psychological are measured at first point in time.
- Much later other variables – response variables – are measured.



Prediction Studies: Retrospective design

- The researcher knows the criterion groups.
- Wants to determine the levels of the predictor – independent – variable at some stage in the past.



Prediction Studies: Prospective design

- Initially measure predictor variables - at a later stage determine the criterion-group level of each individual.
- The researcher wants to determine whether criterion-group membership can be predicted from the initial measurements and variables



Opinion Polls

- An example of **survey research**.





References

- BABBIE, E. 2007. *The practice of social research*, Belmont, CA, Wadsworth, Cengage Learning.
- COOPER, D. R. & SCHINDLER, P. S. 2003. *Business Research Methods*, New York, McGraw-Hill.
- CRESWELL, J. W. 2009. *Research Design: Qualitative, quantitative and mixed methods approaches*, California, Sage Publications.
- MOUTON, J. 2001. *How to succeed in your Master's and Doctoral Studies*, Pretoria, Van Schaik Publishers.
- REMENYI, D. & MONEY, A. 2004. *Research supervision for supervisors and their students*, Kidmore End, Academic Conferences Limited.
- STRAUSS, A. & CORBIN, J. 1990. *Basics of qualitative research: Grounded theory procedures and techniques*, Newbury Park, CA, Sage Publications.